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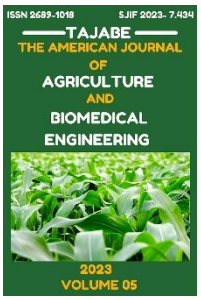

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Research Article

SPECIES OF BUGS MET IN GRAIN FIELDS AND THEIR DAMAGE

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ABSTRACT

The article describes the injurious bug species composition, area, and what crops are most damaged by them occurred in grain crops irrigated in our Republic.

KEYWORDS

Sunn pest, tortoise bug, sharp-headed bug, grain fields, grain crops, insect pests, climatic conditions, wheat, barley, rice, maize, observations, research, damage, species composition.

INTRODUCTION

In order to effectively use crop protection measures in grain fields, it is very important to study the species composition and dominant species of insect pests, and the extent of their damage.

There are many types of bugs in grain fields, which are known, but they differ from each other in terms of living conditions. Some species of them feed only on plants belonging to the family of spiked cereals, while others change feeding location throughout the season. But in regions with different natural climatic conditions, species adapted to these conditions and cause more damage to crop. That is why it is necessary to determine the dominant types of existing bugs for each location. Considering the above, we conducted research to study species composition of pests of cereal crops.

Since the climatic conditions of Uzbekistan are favorable for the growth of insects harmful to grain and other agricultural crops, it is observed that the incidence of various pests in our grain fields is

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increasing year by year. Among the insects that develop in wheat fields and cause serious damage to the crop, blackflies are important.

Sunn pests are common in North African countries, Syria, Palastin, Iraq, Turkey, Iran, Afghanistan, Greece, Bulgaria, Romania, Azerbaijan, Ukraine, Russia and Central Asian countries, and are observed to cause significant damage to wheat crop yields each year. Sunn pests can be found in all irrigated grain fields of Uzbekistan where irrigated grain is planted, causing damage in the vegetation development phases of bushing, flue pulling, spike pulling, milk ripening and wax ripening, adversely affecting wheat yield and quality in mass-increased areas. Wheat is seriously damaged by both adult sunn pests and its larvae. As a result of damage to the stems during the budding period, the spikes do not develop well and remain dull. As a result of unripe spike damage, however, it becomes partially or completely white spike (i.e. dull), while the protein in the grain decreases. The germination of the seed grain obtained from the affected legumes is reduced by up to 50%. During the next 4-5 years, it is observed that the sunn pests spread more and more widely in the irrigated grain fields of our Republic, causing significant damage to the quality and quantity of the cultivated grain. However, under the conditions of Uzbekistan, the basics of bioecological development of these pests, their distribution area, level of damage and measures to fight against it have not been sufficiently studied. Today, when "Grain independence" has been made an urgent task by our government, it is necessary to carry out in-depth scientific and research work on the above problems and to develop a set of ecologically safe and effective measures against this pest [1, 2, 3, 4, 5].

On the basis of the above-mentioned problems, during 2020-2022, scientific and research work will be carried out to create ecologically safe and effective protective measures against sunn pests based on the study of the species composition, distribution area of dominant species, bio-ecological development characteristics, natural habitats and level of damage in the irrigated grain farming system of Uzbekistan in climatic conditions.

Research methodology. Researches are carried out based on general-entomological (Golub et al., 1980; Starostin et al., 1987; Voronin et al., 1988; Tansky, 1988; Areshnikov, Starostin, 1992; Dorohova et al., 2001; Alexin, 2002; Tansky et al., 2002) and agrotoxicological (VIZR, 1986; Chenkin et al., 1990; Khojaev et al., 2004) methods. The effectiveness of chemical and biological drugs is calculated using Abbot formula (Gar, 1963).

Research results: In our observations on species of grain insect pests distributed in irrigated grain fields, there were 4 species identified as follows: Sunn pest - Eurygaster integriceps Put., tortoise bug - Eurygaster maura L., Bishop's mitre - Aelia acuminata F. and sloe bug - Dolyciris penicillatus Horv., which caused significant damage to grain crops (Table 1).

We have conducted observations in all regions to study the range of sucking pests of grain crops in grain fields. It was found that these insects of the above-mentioned group of sucking pests were identified in all grain fields of the region.

Due to different natural climatic conditions on the territory of the Republic of Uzbekistan, the spreading of bug species is also different. It was observed that the sunn pest caused damage to the fields in Karakalpakstan and Khorezm region. Even the sunn pest, tortoise bug, Bishop's mitre and sloe bug were found in the fields in Bukhara, Navoi, Jizzakh and Syrdarya regions, but their population density was not so high.

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Table 1

Species of Pests Found in Irrigated Grain Fields.

2008–2022

№	Pest name	Family	Latin name	Spreading among bugs*, %	Level of spreading by area		
					Low	Mean	High
1	Sunn pest	Scutelleridae	Eurygaster integriceps Put.	88,8	Republic of Karakalpakstan and Khorezm region	Navoi, Jizzak, Syrdarya regions	Tashkent, Samarkand, Bukhara, Surkhandarya, Kashkadarya and Fergana regions
2	Tortoise bug	Scutelleridae	Eurygaster maura L.	7,2			
3	Bishop's mitre	Pentatomidae	Aelia furcula F.	2,9			
4	Sloe bug	Pentatomidae	Dolycoris penicillatus Horv.	1,1			

*** The data for 2008-2022 was presented.**

It has been noticed there were also lot of sunn pest, tortoise bug, Bishop's mitre, and Sloe bug in grain fields of Tashkent, Samarkand, Kashkadarya, Surkhandarya regions, as well as the Fergana Valley.

It was observed that each year the number of sunn pest, and in other years, the number of tortoise bugs were also higher than the economic injury level in these regions.

Taking into account different natural climatic conditions of the country, we divided the grain-sucking pest group into 3 groups based on the results of our observations of the spread of bugs in the regions: the first group - areas with low distribution (Republic of Karakalpakstan and Khorezm region), the second group - areas with average distribution (Navoi, Jizzakh and Syrdarya regions), and the third group included grain fields of widely distributed areas (Tashkent, Samarkand, Bukhara, Surkhandarya, Kashkadarya, Andijan, Namangan and Fergana regions).

We have conducted studies to determine which cereal crops are most affected by insect pests. During our observations, sunn pests, tortoise bugs and Bishop's mitres were found in large numbers in wheat and barley, but less in rice and other cereal crops. In addition to wheat, barley, and rice, it was observed that sloe bugs damaged sorghum, sunflower, and tomato. (Table 2).

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Table 2

The Level of Occurrence of Injurious Insects in Grain Crops Research Institute for Plant Protection, 2008-2022

№	Name of injurious insects	Type of crops						
		Wheat	Barley	Maize	Sorghum	Oats	Rice	Rye
1	Sunn pest	+++	+++	-	-	+	++	+
2	Tortoise bug	+++	++	-	-	+	+	+
3	Bishop's mitre	+	+	-	-	+	+	+
4	Sloe bug	+	+	-	-	+	++	+

Symbols: -not occur; + low; ++ mean; +++ high

According to results obtained, the sunn pest found in grain crops, was widespread as a dominant species and occurred in crops belonging to the Gramineae family.

In conclusion, there are 4 types of pests found in irrigated grain crops under our country's climatic conditions such as the sunn pest, tortoise bug, Bishop's mitre, and shield bug that severely damage crops.

REFERENCES

1. Areshnikova B.A., Starostin S.P. Vrednaya cherepashka (Sunn Pest) . – M.: Agropromizdat, 1992. – p. 61.
2. Pavlyushin B.A et al. Vrednaya cherepsahka: rasprostranenie, vredonosnost, metody controlya. (Sunn Pest: Distribution, Harmfulness, Methods of Control). – M.: Zaschita i karantin rasteniy (Plant Protection and Quarantine). – 2010. - №1.
3. Yahontov V.V. Urta Osiyo qishloq hujaligi zararkunadalari. (Agricultural Insect Pests in Central Asia) – Tashkent: "Urta va oliy maktab", 1962. – B. 368-382.
4. Alexin V.T. Vrednaya cherepashka //J. Защita i karantin rasteniy. – Moskva, 2002. -№4. – 28 s.
5. Pavlyushin V.A. i dr. Vrednaya cherepashka: rasprostranenie, vredonosnost, metodы kontrolya // J. Защita i karantin rasteniy. – Moskva, 2010. -№1. – 32 s.